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**REMARKS**

Claims 1-19 are presently pending in the application. Claims 1, 8, and 14 are in independent form. Claims 17-20 have been newly introduced by this amendment. New claims 18-20 are directed to a temperature sensor.

Claims 6 and 11 have been amended to overcome the §112, second paragraph rejection by deleting the duplicate limitations.

A terminal disclaimer will be submitted shortly to overcome the double patenting rejections, including the provisional rejections.

Figure 9 has been amended to correct an arrow indicating dilution flow direction through the feed tube 132. The Specification has been amended to include mention of the terminal ends 29 and 129, which were depicted in the Figures. A numbering error was also corrected in the Specification.

**102 rejections:**

Claim 14 was rejected under §102(b) over Yamasaki. Amended claim 14 requires that the feed tube outlets be between the first and second end portions of the probe. This relationship is further described in new claim 17. The claimed features are described in Applicant's Specification and shown in Figures 2 and 3. As disclosed in the Yamasaki Figures and at column 4, lines 47-49, "feed tubes 10" are downstream of the second portion, and thus, cannot be between the first and second end portions, as claimed.

**103 rejections:**

A. Claims 1, 3, 6-12 and 15 were rejected under §103 over Lewis in view of Colvin. Lewis lacks the outer tube surrounding at least a portion of the probe.

1. Claims 1, 6, 8, 9 and 11: The Examiner argues that it would have been obvious to modify Lewis to provide the tube of Colvin to aid in preventing condensation during sampling. However, the Examiner ignores that the Lewis and Colvin systems are completely different and incompatible.

Lewis takes the entire volume of vehicle exhaust and later dilutes the exhaust. Lewis is for constant volume sampling system in which the total volume of the exhaust is measured (see column 1, lines 27-40 and cited CFR section in column 1). Specifically, the "probe 14" has the

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diameter of a vehicle tailpipe (typically, well over an inch in diameter) since it is coupled to the tailpipe 13 "end-to-end" by a tailpipe adapter 12 (see column 3, lines 19-21). Colvin is concerned with obtaining a very precise pressure drop measurement from a proportional exhaust gas sample for mini-diluter systems. Mini-diluters handle significantly less exhaust gas (see Colvin column 2, lines 6-9). The "probe 201" of Colvin is 1/16 of an inch in diameter (see column 3, lines 47-48). Because of its small size, the Colvin probe can be easily heated by a transformer 206 (see column 2, lines 48-51). The transformer 206 is connected to the outer tube 202 to heat it.

The combination is improper because one of ordinary skill would not combine the references. First, Colvin states that prior art "total volume systems" (Lewis) and mini-diluter systems (Colvin) are incompatible (see columns 1 and 2 of Colvin). Second, the Colvin outer tube 202 would not be employed with the Lewis probe 14 because an accurate pressure drop cannot be measured at the probe 14 because of the large diameter of the probe 14 (see Colvin column 2, lines 47-57). Third, the Colvin outer tube 202 cannot be used with the Lewis probe 14 because it could not heat the probe 14 effectively. Fourth, Colvin's invention is used to eliminate ovens (see Colvin column 1, lines 41-50) and there are no ovens in Lewis. Fifth, there is no mention of problems with water condensation in Lewis. The Examiner cannot presume that a problem exists in Lewis without any such indication, especially since Lewis is a different type of emissions test system. Accordingly, for these reasons all of the §103 rejections must be withdrawn.

2. Claims 3 and 10: Claims 3 and 10 require a diffuser tapering toward said orifice. The Examiner has called the element 27 of Lewis an orifice, presumably at the throat of the venturi 27. The claims then dictate that the left half of element 27 is the diffuser. However, the since the left half of the element 27 converges it is a cone that creates turbulence at its exit. Only the right half of element 27 can be considered a diffuser based upon the flow direction of Lewis. Accordingly, Lewis cannot meet the claim limitations.

3. Claims 15 and 16: Amended claims 15 and 16 require the dilution gas chamber to be arranged radially outwardly of the outer tube and between the first and second end portions of the probe, which is not shown in Colvin. Claims 15 and 16 are allowable for this additional reason.

4. Claims 7 and 12: The claims require a probe diameter of approximately 1/4 inch in

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diameter. The probe 14 of Lewis is the diameter of a vehicle tailpipe, obviously much larger than  $\frac{1}{4}$  inch. Accordingly, the outer tube 202 of Colvin cannot be used with the Lewis probe, since the Colvin outer tube must be small (see above). Furthermore, the probe of Colvin, which is specified as  $\frac{1}{16}$  of an inch, cannot be  $\frac{1}{4}$  inch because the outer tube 202 is  $\frac{1}{4}$  inch at its O.D. A  $\frac{1}{4}$  inch probe in Colvin would interfere with the outer tube 202 and eliminate the air gap between the probe and outer tube. For these reasons, the combination is also improper.

B. Claims 2 and 5 were rejected under §103 over Lewis in view of Colvin and in further view of Decker. Claim 2 requires that the flange provide the orifice. The Examiner has not addressed this limitation in his argument. This feature is not shown in Decker. With respect to claim 5, the Examiner has not argued that the mixer and all its structure is connected to the tunnel and all its structure are removably secured to one another. Up until now, the Examiner has been hedging as to what features are provided by what structure. The Examiner has not met his burden in establishing that all of the limitations of claim 5 have been met.

C. Claim 13 was rejected under §103 over Lewis in view of Colvin and in further view Breton. The portion of column 6 of Breton cited by the Examiner and the Breton schematics do not disclose the specific structure recited in claim 6, namely, the probe, outer tube and fastener. There is nothing in the references to suggest the use of this specific structure. The Examiner's rejection cannot stand.

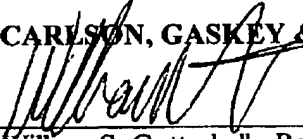
For the reasons set forth above, Applicant submits that the pending claims in the application are allowable. Applicant respectfully solicits allowance of these claims.

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The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds in the amount of \$110.00 for a one month extension. The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds for any additional fees or credit the account for any overpayment.

Respectfully submitted,

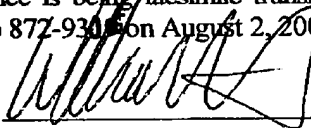
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CERTIFICATE OF TRANSMISSION UNDER 37 CFR 1.8

I hereby certify that this correspondence is being facsimile transmitted to the United States patent and Trademark Office, fax number (703) 872-9300 on August 2, 2004.

  
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William S. Gottschalk